

1                   ABSTRACT OF THE INVENTION

2       A pressure-balanced battery for powering downhole-drilling components and a  
3       downhole telemetry network in a subterranean environment includes a battery and a housing  
4       enclosing and sealing a volume containing the battery. At least a portion of the housing is  
5       expandable and contractible to enable pressure encountered downhole to balance pressure  
6       internal to the housing. In this way, the thermal range of a battery's operation may be  
7       increased to function in a downhole environment. In selected embodiments, the housing is in  
8       operable communication with downhole fluids to transfer pressure to the battery. In selected  
9       embodiments, the battery is integrated into the annular structure of an existing downhole  
10      tool. In other embodiments, the battery may be integrated into a downhole tool specifically  
11      dedicated for use as a battery.

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